

The Electrical Telegraph.—This is a very ingenious contrivance or invention of Mr. Bain, by means of which communication can be made almost instantaneously at a distance of many miles from one terminus to another. A sheet or plate of zinc is placed at one terminus, and a sheet or plate of copper at another; the connection between them is by a copper wire. A voltaic battery is thus created, the electric currents being produced by the earth and this simple apparatus. The currents are constant, the variations during eighteen months being found to be very small. The mechanical part of the apparatus consists of a clock at each terminus, with an index and figures marked on a circular plate from 1 to 9; these figures point out certain letters, or words, or sentences, in a vocabulary, and by these means intelligence of various events can be communicated from one terminus to another. The electric fluid operates upon these clocks so as to stop the index at the required figures; the clocks themselves being put and kept in motion by weights. There are some other minuter and more delicate details in the construction of these engines, by means of which the accuracy is better secured than in former inventions, and there is a contrivance by means of which the numbers are printed, without loss of time, on a paper attached to a cylinder or drum. The telegraph has been at work at the terminus of the South-Western Railway, the plate of zinc being at Nine Elms, and the plate of copper at Wimbledon, a distance of six miles. The results have proved highly satisfactory, and established the rapidity and accuracy of communication, and the simplicity of the means by which it is accomplished.

Railways in Prussia.—The *Hamborgh papers* of the 13th instant contain the following singular notification, copied from the *Prussian Gazette*:—

"The Prussian Minister of Finance has issued a notice to the following effect:—

"The constantly increasing number and extent of the projects for constructing iron railways, which have been eagerly brought forward of late, begin already to have a pernicious influence on commerce and manufactures, by withdrawing from them the capital necessary to carry them on, and employing it in dealing in railroad shares. But these disadvantages must be more visible, and in many cases, undoubtedly ruinous, if besides the railroads already approved, or especially recommended by the provincial assemblies, all or the greater part of these projects should be carried simultaneously into execution, since they would require enormous sums of money, and a much greater amount of labour than can be spared from manufacturing industry. It seems, therefore, the more necessary to check these numerous extensive projects, as they are often used to carry on improper intrigues and to promote ruinous gambling in the shares. The Minister announces that he is authorised to state, that (with the exception of cases for which the most urgent reasons shall appear) no further permission for the construction of iron railways will be granted for several years to come, and he warns all persons to avoid purchasing shares in such unauthorised projects."

Atmospheric Railways.—The *British and Foreign Review* says—"The Atmospheric Railway is no longer an experiment, but an established means of transit, tested and proved by repeated trials, and by the opinions of the most eminent engineers, English and Continental, who have witnessed and watched its success, and expressed their opinions satisfactorily upon the subject. Amongst the opinions expressed by the most eminent of our engineers, is that of Mr. Brunel. The prospectus of a Gravesend and Chatham Company, which has recently appeared, contains a recommendation of the committee, founded upon the opinion of their engineer, I. K. Brunel, Esq., to adopt the atmospheric system. The prospectus states that 'The committee, having made a satisfactory inquiry as to the decided economy with which the Dublin and Kingstown Extension Railway is now being worked as an atmospheric line, and their engineer having satisfied himself as to the advantages this plan of motive power affords, recommend its adoption on the proposed line of communication, both as a means of keeping the capital within a very moderate compass, and increasing the profits by a reduced charge of working.'

Rival Railways.—Lines of railway are projected by the Great Western Company, from Oxford to Banbury, and from that town a railway is projected to Worcester. In opposition to this movement, the London and Birmingham Company are projecting railways from Aylesbury to Oxford, and from Oxford to Leamington, by Banbury.

A railroad, to cross the river Severn near Purton, and to proceed from Stonehouse, on the Great Western line, through the Forest of Dean, to Monmouth, thence down the valley of Usk, beyond Brecon, and afterwards by the river Towy to Carmarthen, is confidently talked of.—*Gloucester Journal*.

Correspondence.

MORTARS AND CEMENTS.

SIR,—In Mr. Wylson's Essay on Mortars and Cements, he states in the last paragraph that he is not aware of the Coral Islands being used as lime. I beg to refer him to John Williams's "Narrative of a Residence in the South Seas," and I believe, also, Ellis's "Polynesian Researches," for information on this subject, when he will find that Mr. Williams has used it for building and plastering. I have not either of the works by me, or I would send you the passages.

While on the subject of cements, in a *Builders' Dictionary* of 1734, I find the following article on cement, which may be new to many of your readers:—

"Cement, in architecture, is a strong sort of mortar used to bind or fix bricks or stones together for some kind of mouldings; or in cementing a block of bricks (as they call it) for the carrying of capitals, scrolls, or the like.

"It is of two sorts; one called *hot cement*, and the other *cold cement*, because the hot cement is made and used with fire, and the cold cement is made and used without fire.

"To make the hot cement, take half a pound of bees'-wax, an ounce of fine brick-dust, an ounce of chalk-dust or powdered chalk; sift both the brick-dust and chalk through a fine hair sieve (the brick and chalk may be beat in a mortar before it is sifted). Let all these be boiled together in a pipkin or other earthen vessel for about a quarter of an hour, keeping it continually stirring with a piece of iron or lath, then take it off and let it stand for four or five minutes, and it is fit for use.

"The bricks which are to be cemented with this kind of cement must be made hot by the fire before the cement is spread on them, and after that, be rubbed to and fro one upon another, after the same manner joiners do, when they glue two boards together.

"The cold cement is less used: and is accounted a secret known but to few bricklayers. It is made in the following manner:

"Take a pound of old *Cheshire* cheese, pare off the rind and throw it by, then cut or grate the cheese very small, put it into a pot with a quart of cow's milk, let it stand all night, and in the morning take the whites of 24 or 30 eggs, and a pound of the best unslacked or quick lime, and beat it in a mortar to a very fine powder, sift it in a fine hair sieve, put the cheese and milk to it in a pan or bowl, and stir them well together with a trowel or such-like thing, breaking the knobs of the cheese, if there be any, then add the whites of eggs, and temper all well together, and it will be fit for use.

"This cement will be of a white colour; but if you will have it of the colour of brick, put into it either some very fine brick-dust or some almagram, but not too much, but just enough to give it a colour."

I remain, Sir, yours truly,
Marylebone, April 22, 1844. B. E. N.

RAVAGES OF THE WORM IN TIMBER.

SIR,—In your paper of the 6th instant, I see a letter from "A Correspondent," calling attention to a description of wood grown in the West Indies, which he says resists the ravages of the worm. The value of such a wood for piling and dock-gates would be immense, and your correspondent's statement should be corroborated if possible. I have myself made some inquiry on the subject, and learn that a quantity of this timber came into London a year or two ago. Perhaps some of your subscribers may have used it, and if so, a

communication through your journal would be welcome to myself and other parties who have not seen any of the timber used.

Ought not our government to import a quantity of such a wood, which for their own works, and for the trade, would be so valuable; and which would benefit our West India Islands, at present said to be so much depressed?

I am, Sir, your obedient servant,
London, 12th April, 1844. G. H.

TIMBER SCARFING.—ROOF TRUSS OF PRINCESS'S THEATRE.

SIR,—Will your correspondent, a "Practical Carpenter," complete his description of this roof-truss by answering the following questions:—

What are the lengths of the timbers out of which he formed his tie-beams?

Are the fitches secured together by any means other than those shewn in the sketch?

What is the length of the scarfing?

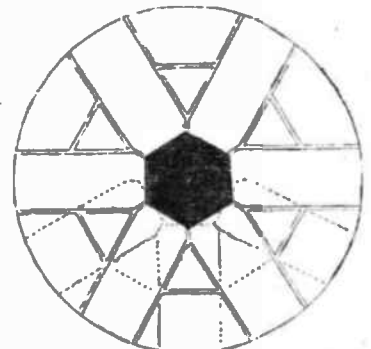
What is the distance between the trusses?

What iron work is attached to the kings, queens, and principals?

I am, Sir, A CONSTANT READER.

METHOD OF BUILDING A BRICK COLUMN.

SIR,—In answer to "J. T.," I beg to send you a plan of the best and most substantial method of building a brick column of two feet diameter. Each course is so arranged that no



two bricks or joints will fall on each other, which is the very *spirit* of all brick bond; the dark space in the centre may either be filled up or left open; I should prefer the latter mode. The pieces of brick which must be cut off from each end of the stretchers, will serve to fill up the small equilateral spaces, so that absolutely there is no waste material whatever.

Then as to the method of "carrying it up," I have found the following the most easy, as also the most accurate: Get a cylindrical rod of iron, about half an inch diameter, also, a piece of wood cut to the proper length for a *trammel*, half an inch thick, and 1½ inch wide, bore a hole in one end, the same diameter as the rod, over which slip the trammel; then fix the iron rod perpendicular in the axis of the column, quite firmly at the bottom and top. The trammel will serve as a guide to the workman in carrying up the brickwork; at the same time the proper *entasis* could be given to the column by shortening the trammel regularly.

If you think the above description worthy of insertion in *THE BUILDER*, you will much oblige, Sir, your obedient servant,

JOHN PHILLIPS.

[If our correspondent will furnish us with the improved theory of brick bond relative to which he has written, it shall be inserted if we find it meritorious.—ED.]

SIR,—Will you, if convenient, inform me whether a person holding the lease of two adjoining houses, and underleasing a portion of one to another person, can, without notice, build upon the yard, leaving only a passage for passing by, the light of the rooms of course being very much hindered by such building? By answering the above you will much oblige, Sir, your obedient servant,

A CONSTANT SUBSCRIBER.

Hackney, April 24, 1844.

[No person can, without being subject to action, build so as to injure any light of any adjoining premises which has been enjoyed 20 years, nor can any person injure in such way his lessee's light, without incurring similar liability.—ED.]